REMARKS

Claims 1, 7, 18, 20, 21, 23, 24, and 26-34 are pending in the application. Claims 2-6, 8-17,19, 22, and 25 have been cancelled without prejudice. Claims 1 and 7 have been amended. New claims 27-34 have been added. Support for the amendments and new claims can be found in original claim 1 and in the specification at, e.g., page 4, lines 5-6, and page 14, lines 17-18. These amendments add no new matter.

Request for Withdrawal of Finality of the Office Action

A non-final Office Action was mailed for the present application on August 29, 2007. Applicants filed a response to the action on November 29, 2007. That response contained no claim amendments. Furthermore, applicants have filed no Information Disclosure Statement subsequent to the action mailed on August 29, 2007. The present Office Action was made final and contains several new grounds of rejection (asserted lack of written description, lack of enablement, indefiniteness, and anticipation) and a new objection (asserted informalities of selected claims). The present Office Action contain no statement as to why a final action was believed to be proper in this instance.

MPEP §706.07(a) states that a "second or any subsequent actions on the merits shall be final, except where the examiner introduces a new ground of rejection that is neither necessitated by applicant's amendment of the claims, nor based on information submitted in an information disclosure statement..." (emphasis added). In view of the absence of a claim amendment or new information submitted in an information disclosure statement, applicants' actions subsequent to the previous office action did not necessitate any of the new rejections. As a result, and as is required by MPEP §706.07(a), the new rejections should not have been presented in a final action. The MPEP passage from reproduced above protects applicants from having to face, under the sever procedural limitations of a final office action, new grounds of rejection that could have been introduced in a prior non-final action but are instead being presented for the first time, through no fault of applicants, in a final rejection. All of the new rejections and objections could have been presented in the prior non-final Office Action.

In view of the introduction of new grounds of rejection that were neither necessitated by applicants' amendment of the claims nor based on information submitted in an information disclosure statement, applicants request that the finality of the present Office Action be withdrawn.

35 U.S.C. § 112, Second Paragraph (Indefiniteness)

At pages 2-3 of the Office Action, claims 4, 19, 22, and 25 were rejected as allegedly indefinite.

Claims 4, 19, 22, and 25 have been cancelled without prejudice, thereby rendering the present rejection moot.

Claim Objections

At page 4 of the Office Action, claims 4 and 7 were objected to for use of the abbreviation "SMCE." These claims have been amended to spell out the full term "store-mediated Ca^{2+} entry." In view of these amendments, applicants re quest that the Examiner withdraw the objection.

35 U.S.C. § 112, First Paragraph (Written Description)

At pages 4-5 of the Office Action, claims 1, 4, 7, and 18-26 were rejected as allegedly failing to comply with the written description requirement.

Claims 4, 19, 22, and 25 have been cancelled without prejudice, thereby rendering their rejection moot. Applicants respectfully traverse the rejection of the remaining claims in view of the following remarks.

Independent claims 1 and 7 recite the terms "agent" and "candidate agent." According to the Office Action, "Applicant has not provided a clear definition in the instant specification which describes what is meant by 'agent' or 'candidate agent.'" The Office Action cites several passages in the specification that review various types of compositions encompassed by these terms.

The currently pending claims are directed to methods of identifying an agent that increases SMCE and glucose uptake in a mammalian cell. These claims are screening claims. For example, in claim 1 a "candidate agent" is used in a screen to determine whether the candidate agent increases SMCE and whether the candidate agent increases glucose uptake in a mammalian cell. The term "candidate agent" merely refers to a composition that is evaluated in the claimed screening methods. As is well known in the art, an enormous variety of structurally diverse compounds can be used in screening assays. In fact, the whole point of screening assays is to test compositions that are not known to have a certain biological activity and, by the process of screening, identify those selected compositions that have the desired activity. A claim to a screening assay would be meaningless if an applicant were required to name or identify the structure of a composition used in the screen, as that would suggest that the composition would already be known to have the activity and there would therefore be no reason to perform the screen. The whole point of a screening assay is to take a potentially limitless number of compositions and identify those that have an activity of interest.

The USPTO released new Written Description Training Materials on March 25, 2008. Example 17 (at pages 58-59) of those materials is directly applicable to the present rejection. Sample claim 2 of Example 17 is directed to a "method for identifying a compound" having a desired activity by contacting a "test compound" with a cell and measuring the activity. The example states that the claim does not limit the compounds that may be used in the assay and the specification does not describe any compounds that have the activity. Nonetheless, the Training Materials unambiguously instruct that the written description requirement is satisfied because practice of the method requires no knowledge of the structures and properties of a compound that would result in the desired activity and the claimed invention is the screening process, not the compounds screened or the compounds identified via the claimed process. The generic screening claim exemplified in the Training Materials is directly analogous to the claims rejected herein.

In view of the foregoing, applicants submit that one of ordinary skill in the art at the time the present application was filed would have concluded that applicants were in possession of the claimed methods of identifying an agent that increases SMCE and glucose uptake in a mammalian cell. As a result, applicants request that the Examiner withdraw the rejection of

independent claims 1 and 7 and claims 18, 20, 21, 23, 24, and 26 that depend directly or indirectly therefrom.

35 U.S.C. § 112, First Paragraph (Enablement)

At pages 5-8 of the Office Action, claims 1, 4, 7, and 18-20 were rejected as allegedly failing to comply with the written description requirement. According to the Office Action, "the specification, while being enabling for mammalian skeletal muscle cells, does not reasonably provide enablement for any and all mammalian cells."

Claims 4 and 19 have been cancelled without prejudice, thereby rendering their rejection moot. Applicants respectfully traverse the rejection of the remaining claims in view of the following remarks.

The currently pending claims are directed to methods of identifying an agent that increases SMCE and glucose uptake in a mammalian cell. The working examples section of the present application describes experimental results relating to glucose uptake in skeletal muscle cells. However, it was well known in the art at the time the present application was filed that glucose uptake occurs in mammalian cell types (e.g., adipose tissue, liver, and various muscle fibers) other than skeletal muscle cells. As a result, the skilled person would have reasonably expected that the role that the inventors found SMCE to have in glucose uptake in skeletal muscle cells would also be applicable to other cell types in which glucose uptake occurs. The skilled person would have had no reason to expect that the inventors' discovery would be limited to only the particular cell type exemplified in the application. Because measuring glucose uptake in cells is a routine procedure, the skilled person would have had no difficulty in performing the claimed methods in any mammalian cell type (i.e., in addition to skeletal muscle cells) in which glucose uptake occurs.

In view of the foregoing, applicants submit that the person of ordinary skill in the art would have been able to practice the full scope of the claimed methods, at the time the present application was filed, without undue experimentation and with a reasonable expectation of success. As a result, applicants request that the Examiner withdraw the rejection of independent claims 1 and 7 and claims 18 and 20 that depend therefrom.

35 U.S.C. § 112, Second Paragraph (Indefiniteness)

At pages 8-10 of the Office Action, claims 1, 4, 7, and 18-26 were rejected as allegedly indefinite.

Claims 4, 19, 22, and 25 have been cancelled without prejudice, thereby rendering their rejection moot. Applicants respectfully traverse the rejection of the remaining claims in view of the claim amendments and the following remarks.

With respect to claim 1, the Office Action stated that "it is unclear from the preamble of claim 1 how the step of lines 4-5 relates to a method of identifying an agent that increases glucose uptake in a mammalian cell, since Applicant has not related an increase in store-mediated Ca2+ entry with an increase in glucose uptake in the instant claim." With respect to claim 7, the Office Action stated that "it is unclear from the preamble of claim [7] how the phrase of lines 3-4 relates to a method of identifying an agent that increases glucose uptake in a mammalian cell, since Applicant has not related an increase in SMCE with an increase in glucose uptake in the instant claim."

Independent claims 1 and 7 have each been amended to recite in their preamble a "method for identifying an agent that increases store-mediated Ca^{2+} entry (SMCE) and glucose uptake in a mammalian cell." It is applicants' understanding that these amendments overcome the rejections under this heading. As a result, applicants request that the Examiner withdraw the rejection of independent claims 1 and 7 and claims 18, 20, 21, 23, 24, and 26 that depend directly or indirectly therefrom.

35 U.S.C. § 102(b) (Anticipation)

At pages 10-11 of the Office Action, claims 1, 4, 7, and 18-26 were rejected as allegedly anticipated by Youn et al. (1991) Amer. J. Physiol. 260:C555-61 ("Youn").

Claims 4, 19, 22, and 25 have been cancelled without prejudice, thereby rendering their rejection moot. Applicants respectfully traverse the rejection of the remaining claims in view of the following remarks.

The claimed invention is based, at least in part, upon the inventors' surprising discovery that inhibition of "store-mediated" Ca^{2+} entry (SMCE) results in a decrease in insulin-stimulated

glucose uptake in skeletal muscle. This finding supports a physiological role of SMCE in insulin action, where an increase in SMCE results in an increased insulin-mediated glucose uptake. Consistent with the inventors' discovery, the claims are directed to methods for identifying an agent that increases SMCE and glucose uptake. Independent claims 1 and 7 contain steps of determining whether a candidate agent that increases SMCE also increases glucose uptake in a mammalian cell.

Youn describes the ability of the compound W-7 to induce calcium release from the sarcoplasmic reticulum and increase glucose transport activity by a pathway independent of muscle contraction. However, and contrary to the apparent suggestion at page 10 of the Office Action, accelerating the release of calcium from the sarcoplasmic reticulum is not the same as increasing SMCE into a cell. Youn nowhere describes a compound that increases SMCE (W-7 used by Youn is not such a compound) to increase cellular glucose uptake. Furthermore, even the W-7 compound described by Youn is not characterized as increasing insulin-stimulated glucose uptake in a cell (selected pending dependent claims relate to insulin-stimulated glucose uptake). In fact, a follow-up publication by Youn et al. (1994) 267:R888-94 (Reference AQ in the Information Disclosure Statement filed on June 25, 2003) clearly shows that W-7 stimulates glucose transport via the same pathway as hypoxia and that the compound selectively *inhibits* insulin-stimulated glucose transport. Because Youn does not describe determining whether a candidate agent that increases SMCE also increases glucose uptake in a cell, as is required by independent claims 1 and 7, Youn does not anticipate the claimed methods.

In view of the foregoing remarks, applicants respectfully request that the Examiner withdraw the rejection of independent claims 1 and 7 and claims 18, 20, 21, 23, 24, and 26 that depend directly or indirectly therefrom.

CONCLUSIONS

Applicants submit that all grounds for rejection have been overcome, and that all claims are now in condition for allowance, which action is requested.

Please apply any charges or credits to deposit account 06-1050, referencing Attorney Docket No. 13425-115001.

Respectfully submitted,

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